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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,699	12/29/2003	Yeong Soo Nam	10125/4129	2139
757	7590	09/08/2005	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			SCHECHTER, ANDREW M	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	10/748,699	NAM ET AL.	
	Examiner	Art Unit	
	Andrew Schechter	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 11-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 17, 19, 20 and 24-27 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 18, 21-23 and 28-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/7/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: the second inventor's signature is missing (a handwritten copy of the inventor's data is provided next to the foreign language text, but the signature box is left empty in both languages).

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by *Lee*, US 2002/0163602.

Lee discloses [see Figs. 3 and 4, for instance] an LCD comprising a substrate [31], a gate line [32] with a portion bent angularly and inwardly [on the bottom, the region not marked "S" in Fig. 3], a gate electrode [36] projecting from the gate line, a gate insulating layer [42], a data line [34] overlapping some of the bent portion of the gate line, a source electrode [38] projecting from the data line, a drain electrode [see Fig. 3], an active layer [44, 46] below the data line, source electrode, and drain electrode, and a pixel electrode [52]. Claim 1 is therefore anticipated.

The active layer overlaps an upper side of the gate electrode and predetermined portions of the source and drain electrodes, so claim 3 is also anticipated. The data line is made of Cr or Mo [paragraph 0081], so claim 4 is also anticipated. The pixel electrode is made of ITO [paragraph 0087], so claim 5 is also anticipated. There is an organic or inorganic [paragraph 0085] passivation layer [48] with a first contact hole to the drain electrode [see Fig. 5], so claims 6 and 7 are also anticipated.

Considering the additional limitations of claim 8, *Lee* also discloses the gate electrode having a portion bent angularly and inwardly [on the right side of the gate electrode, compared to the standard rectangular gate electrode], with the drain electrode overlapped with the bent portion of the gate electrode, so claim 8 is also anticipated.

5. Claims 17, 19, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by *Kang*, U.S. Patent No. 6,900,872.

[The applied reference has a common assignee as with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.]

[This rejection might also be overcome by the filing of a certified translation of the applicant's priority document, perfecting a filing date before 14 March 2003.]

Kang discloses [see Fig. 5 for instance] an LCD with substrate, gate line, gate electrode projecting from gate line, gate insulating layer, data line, source electrode projecting from data line, drain electrode, active layer [127] below the data line, source electrode, and drain electrode, a pixel electrode [138], wherein the boundary of a second side [the lower side] of the gate line, disposed overlapping the data line, is greater than a width of the data line [due to curving]. Claim 17 is therefore anticipated.

There is a notch formed in the gate line, with a portion of the boundary defining a portion of the notch, so claim 19 is also anticipated. A section of the notch is disposed directly opposite to the gate electrode, so claim 20 is also anticipated.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17, 19, 20, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ko et al.*, U.S. Patent No. 6,285,418, in view of *Dohjo et al.*, U.S. Patent No. 6,078,366.

Ko discloses [see Figs. 3 and 4, for instance] an LCD comprising a substrate [200] a gate line [21L], a gate electrode [21G] projecting on a first side [the top] of the gate line, a gate insulating layer [22], a data line [25L], a source electrode [25S] projecting from the data line, a drain electrode [25D] on the gate insulating layer at a fixed interval from the source electrode, a pixel electrode [27], wherein a boundary of a second side [the bottom] of the gate line opposing the first side, and disposed in a portion of the gate line that overlaps the data line, is greater than a width of the data line [see Fig. 3, where the gate and data lines overlap on the right side of the drawing].

Ko does not explicitly disclose an active layer below the data line, source electrode, and drain electrode [23 is only below the source and drain electrodes]. *Dohjo* discloses [see title, Figs. 2 and 17, for instance] an active layer which is below the data line as well as the source and drain electrodes. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such an active layer in the device of *Ko*, motivated by *Dohjo's* teaching that this provides higher production yield due to suppressing capacitance fluctuations and shorting, and reduces the number of masking steps needed [col. 18, lines 42ff., for instance]. Claim 17 is therefore unpatentable.

A notch is formed in the gate line [on the bottom of the gate line, from each data line to the shaded region, and note that the slant in the gate line is inaccurately omitted on the left of Fig. 3] and at least a portion of the boundary defines a portion of the notch, so claim 19 is also unpatentable. A section of the notch is directly opposite the gate electrode, so claim 20 is also unpatentable. The width and length of the notch are less than the width and length of the gate electrode, respectively, so claims 24 and 25 are also unpatentable. An edge of the notch and an edge of the gate electrode are non-parallel with an edge of a portion of the gate line in which the notch is not formed, so claim 26 is also unpatentable.

8. Claims 1-3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kim et al.*, Korean Patent Document No. P1999-0074559 (made of record by the applicant), in view of *Dohjo et al.*, U.S. Patent No. 6,078,366.

Kim discloses [see Figs. 2 and 3] an LCD comprising a substrate [1], gate line [2] having a portion bent angularly and inwardly (alternating parts of wavy region), gate electrode [21] projecting from the gate line, gate insulating layer [3], data line [6] overlapping some of the bent portion, source electrode [61] and drain electrode [62], and pixel electrode [8].

Kim does not explicitly disclose an active layer below the data line, source electrode, and drain electrode [4 is only below the source and drain electrodes]. *Dohjo* discloses [see title, Figs. 2 and 17, for instance] an active layer which is below the data line as well as the source and drain electrodes. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such an active layer in the

device of *Kim*, motivated by *Dohjo*'s teaching that this provides higher production yield due to suppressing capacitance fluctuations and shorting, and reduces the number of masking steps needed [col. 18, lines 42ff., for instance]. Claim 1 is therefore unpatentable.

At least a section of the bent portion is curved, so claim 2 is also unpatentable. The active layer overlaps the upper side of the gate electrode and portions of the source and drain electrodes, so claim 3 is also unpatentable. There is a passivation layer [7] with a contact hole, so claim 6 is also unpatentable.

9. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Morita et al.*, U.S. Patent No. 6,897,482 in view of *Dohjo et al.*, U.S. Patent No. 6,078,366.

Morita discloses [see Fig. 3, for instance] an LCD comprising substrate, gate line [4], gate electrode [5] projecting, gate insulating layer [6], data line [8], source electrode [9] projecting, drain electrode [10], a pixel electrode [14], wherein changes in a capacitance formed by a total overlap between the gate line and the data line and one of between the gate electrode and the data line and between the gate electrode and the source electrode are substantially compensated for with movement of the gate line in a direction of a width of the data line [see Fig. 3: if the gate line is moved horizontally a small amount, then the overlap of the gate and data lines is substantially unchanged as is the overlap of the gate electrode with either of the data line (zero) and the source electrode (non-zero, but not sensitive to shifts in the gate line)].

Morita does not explicitly disclose an active layer below the data line, source electrode, and drain electrode [7 is only below the source and drain electrodes]. *Dohjo*

discloses [see title, Figs. 2 and 17, for instance] an active layer which is below the data line as well as the source and drain electrodes. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such an active layer in the device of *Morita*, motivated by *Dohjo*'s teaching that this provides higher production yield due to suppressing capacitance fluctuations and shorting, and reduces the number of masking steps needed [col. 18, lines 42ff., for instance]. Claim 27 is therefore unpatentable.

Allowable Subject Matter

10. Claims 9, 10, 18, 21-23, and 28-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose the device of claim 9, in particular the additional limitation that the bent portion of the gate line is curved. Claim 9 would therefore be allowable if rewritten appropriately.

The prior art does not disclose the device of claim 10, in particular the additional limitation that a section of the bent portion of the gate electrode is curved. Claim 10 would therefore be allowable if rewritten appropriately.

The prior art does not disclose the device of claim 18, in particular the additional limitation that a boundary of the gate electrode that overlaps the drain electrode greater

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than a width of the drain electrode. Claim 18 would therefore be allowable if rewritten appropriately.

The prior art does not disclose the device of claim 21, in particular the additional limitation that an edge of the notch is aligned with an edge of the gate electrode, so claim 21 be allowable if rewritten appropriately, as would claims 22 and 23 which depend from it.

The prior art does not disclose the device of claim 28, in particular the additional limitation that a boundary of the gate electrode that overlaps the drain electrode is greater than a width of the drain electrode, so claim 28 would be allowable if rewritten appropriately, as would claims 29-36 which depend from it.

Election/Restrictions

12. Applicant's election of Group I in the reply filed on 23 June 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

13. Claims 11-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Conclusion


14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,724,444 to *Ashizawa et al.* discloses gate lines with bent portions near the data line, but not a gate electrode that projects from the gate line.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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5 September 2005